

# **Polychlorinated Biphenyl Concentrations in Adult Chinook Salmon (*Oncorhynchus Tshawytscha*) Returning to Two-Coastal and Two-Puget Sound Hatcheries**

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## **ABSTRACT**

Polychlorinated biphenyl (PCBs) concentrations were evaluated in the muscle tissue of 4-year old Puget Sound and coastal hatchery Chinook salmon. Ten muscle tissue samples per location were taken from two Puget Sound hatcheries and two Washington coast hatcheries to determine PCB concentrations. Two trade name PCBs, Aroclor 1254 and Aroclor 1260, were found. Aroclor 1254 was detected in all samples, while Aroclor 1260 was detected in 16 out of 40 samples. Generalized linear modeling (GLM) was used to evaluate the influence of several variables on PCB concentrations. Twenty different GLMs, representing multiple null hypotheses, were ranked using Akaike Information Criterion (AIC). PCB concentrations were explained by models including region and lipids, followed by region, and location (hatchery) and lipids. Region appears to be the variable that explains most of the variation in PCB concentrations in Chinook salmon in the northwest. PCB concentrations in Chinook salmon muscle tissue from Puget Sound hatcheries were significantly greater (mean 49.26 µg/kg wet weight; standard deviation 40.55 µg/kg) than those from coastal hatcheries (mean 17.41 µg/kg wet weight; standard deviation 6.8 µg/kg). This suggests that the primary source of PCBs observed in Puget Sound Chinook salmon is contamination within Puget Sound. Four-227 gram (8oz) portions from Puget Sound Chinook salmon and sixteen-227 gram portions from coastal Chinook salmon can be consumed before the potential for adverse risk from PCB consumption becomes a concern, based on EPA's fish consumption guidelines and mean PCB concentrations observed during this study. In addition, salmon carcass supplementation may need to be reevaluated to determine if adding fish contaminated with PCBs to increase marine derived nutrients is worth the environmental risk.